

July 20, 2001

File No. 52-5146.01

Mr. Warren Rosebraugh, PE
Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

**SUBJECT: Tall Pot Mitigation Site Testing
Assignment No. 1
Elliot TP Investigation**

FLOOD CONTROL DISTRICT RECEIVED	
JUL 23 '01	
CH & GM	FINANCE
PIO	LANDS
ADMIN	IC & M
REG	P & PM
<input checked="" type="checkbox"/> ENG	FILE
CONTRACTS	
ROUTING	

WIFR

Dear Mr. Rosebraugh:

Kleinfelder, Inc. (Kleinfelder) is pleased to present this report summarizing our subsurface study performed for the Tall Pot Mitigation Site. The project site is located near the southeast corner of the East Maricopa Floodway and Chandler Heights Road in Chandler, Arizona. The results of our field study, laboratory study and recommendations are presented in the attached report.

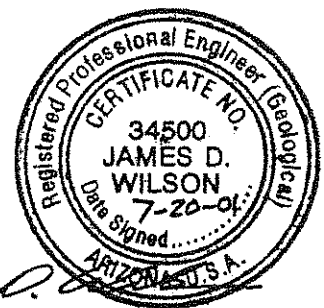
In summary, the soils at the site are suitable for most uses from a geotechnical and chemistry perspective with respect to testing performed. The recommendations presented herein are subject to the limitations presented at the end of the report. We appreciate the opportunity to be of service on this project. If you have questions, comments or require additional information, please do not hesitate to contact our office.

Respectfully submitted,

KLEINFELDER, INC.

Charles E. Reynolds

Charles E. Reynolds, GIT
Project Manager



James D. Wilson, PE
Senior Project Engineer

General

In this report we present the results of our subsurface study for the Tall Pot Mitigation Site located in Chandler, Arizona. The location of the site relative to existing streets and the surrounding area is shown on Figure 1. The purpose of the study was to explore and evaluate the soil conditions at the Tall Pot Mitigation Site.

Our study included a site reconnaissance, subsurface exploration, representative soil sampling, field and laboratory testing, engineering analyses, and preparation of this report. This report presents the result of a backhoe exploration program, laboratory analysis for soil properties, agronomic properties and analysis for the presence of organochlorine pesticides. The results contained in this report are subject to the limitations presented herein. Attention is directed to the "Limitations" section of this report.

Proposed Project

We understand the Flood Control District of Maricopa County (FCDMC) owns excess land and soil stockpiles near the East Maricopa Floodway and Chandler Heights Road in Chandler Arizona. At some time in the future FCDMC may offer the site soils as a borrow source.

Should final design details vary from those stated above, this office should be notified for review and possible revisions to our recommendations.

Site Description

The site is located southeast of the East Maricopa Floodway and Chandler Heights Road in Chandler Arizona. The East Maricopa Floodway and the Roosevelt Canal bound the site to the west; Chandler Heights bounds the site to the north, Riggs Road is to the south and new rural residential development is located to the east. The approximate configuration of the site is shown on Figure 1, Location Map.

Field Exploration

The field study was performed on June 19, 2001, and consisted of excavating 8 test pits within site at locations established by FCDMC. The pits were excavated, using a Caterpillar 426 rubber-tired backhoe, to depths ranging from 3 to 10 feet below the existing ground surface. Plote Excavating Inc. was subcontracted to excavate the pits. A Kleinfelder staff engineer observed the pit excavation, classified the encountered soils, prepared boring logs, and collected soil samples for laboratory examination and testing.

Prior to the start of excavating, the Arizona Bluestake Center and a private locator service were contacted to locate any potential existing utilities at the pit locations. Upon completion of the pit excavation, the pits were backfilled with the excavated soils.

Bulk samples along with samples for environmental analysis were taken at the direction of the field engineer during pit excavation. After soils were removed from each pit, samples were removed, appropriately contained, and submitted to the laboratory for the designated testing.

Soil classifications made in the field from excavated and samples were re-evaluated in the laboratory after further examination and testing. The soils were classified in accordance with the attached Unified Soil Classification System.

Sample classifications, and other related information were recorded on the test pit logs. The logs for TP-1 through TP-8 are attached.

The locations of the pits were estimated by our engineer based on rough measurements from the limits of existing landmarks; therefore, the locations of the borings should be considered approximate.

Laboratory testing

Representative soil samples from the borings were tested in the laboratory for classification purposes and to evaluate their engineering properties. The laboratory tests included:

- Six sieve analyses
- Six Atterberg limits tests
- Eight agronomic tests
- Eight nitrogen content tests
- Eight phosphorous content tests
- Eight organochlorine pesticide tests (EPA Method 8081)

Subsurface Soil Conditions

In general, the soils generally consist of non-plastic to low plasticity, fine grained soils consisting of Sandy Clays (CL), Silty Sands (SM) and Clayey Sands (SC) along with some Sandy Silts (ML). Recommendations for their use are presented below.

Agonometric testing show that most parameters were within acceptable ranges for desert soils. Nitrogen concentrations were elevated in some samples.

Tests for the presence of pesticides showed trace amounts (0.0017 to 0.098 mg/kg) of DDT, DDE and Toxaphene. All recorded detections were below the Arizona Department of Environmental Quality (ADEQ) residential and commercial soil remediation levels.

Conclusions & Recommendations

The results of our study show that soils at the Tall Pot site, from a physical standpoint, will be suitable for most uses such as mass grading or topsoil. The gradations are such that the material will not meet requirements for most structural or trench backfill specifications. From the standpoint of soil chemistry, parameters are within acceptable ranges and will be acceptable for most uses, including topsoil. Pesticide analysis showed trace amounts of DDT, DDE and Toxaphene. All detections of DDT and DDE were below the ADEQ residential and commercial soil remediation levels of 13.0 mg/kg and 56.0 mg/kg, respectively. Detections of Toxaphene

were below residential and commercial soil remediation levels of 4.0 mg/kg and 17 mg/kg, respectively.

Limitations

The recommendations contained in this report are based on our field explorations, laboratory tests, and our understanding of the proposed construction. The subsurface data used in the preparation of this report were obtained from the eight test pits excavated during the field study. It is anticipated that some variations in the soil conditions will exist between the points explored. The nature and extent of variations may not be evident until excavation occurs. If any conditions are encountered at this site, which are different from those described in this report, our firm should be immediately notified so that we may make any necessary revisions to the recommendations contained in this report. In addition, if the scope of the understood use changes from that described in this report, our firm should also be notified. This report was prepared in accordance with the generally accepted standard of practice in Arizona at the time the report was written. No warranty, expressed or implied, is made. It is the Client's responsibility to see that all parties to the project including the Designer, Contractor, Subcontractors, etc. are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.















PLATES



APPENDIX A

Boring Logs

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			USCS SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVELS WITH LESS THAN 5% PASSING NO. 200 SIEVE	 GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			 GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH OVER 12% PASSING NO. 200 SIEVE	 GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
			 GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH LESS THAN 5% PASSING NO. 200 SIEVE	 SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			 SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH OVER 12% PASSING NO. 200 SIEVE	 SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
			 SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid limit less than 50)		 ML	INORGANIC SILTS & VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
			 CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			 OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid limit greater than 50)		 MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
			 CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			 OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

Note: Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing No. 200 sieve require dual USCS symbols. (See KEY A-3 if provided)



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UNIFIED SOIL CLASSIFICATION SYSTEM

Tall Pot Mitigation
Maricopa County Flood District
Excess Land
Chandler, Arizona

KEY

A-1

Drafted By: jm
Date: July, 2001

Project Number:
52-5146-01

Northing and Easting: _____ Elevation (ft): _____
 Groundwater (ft): No Free Groundwater Encountered
 Excavation Co.: Plote Backhoe Equipment: CAT-436 4x4
 Excavation Method: BACKHOE Bucket Size (ft): 1.5

Started: 6/19/2001
 Date Completed: 6/19/2001
 Logged By: Ryan McDonald
 Total Depth (ft): 3.0

	FIELD		LABORATORY							Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft ³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests			0.0 to 3.0 feet
		BULK							Pesticides <i>agrimony?</i>		CL	Sandy Clay - Predominantly fine sand, trace fine gravel, red-brown to brown, dry, low plasticity.
5												Test Pit terminated at 3.0 feet Sampling stopped at 3.0 feet
10												
15												
20												
25												
30												
35												



LOG OF TEST PIT TP-1
 Tall Pot Mitigation
 Maricopa County Flood District
 Excess Land
 Chandler, Arizona

TEST PIT

TP-1

Page 1 of 1

Drafted By: jm Project Number: 52-5146-01
 Date: July, 2001

GEO_ADOT_TEST_PIT_E 514601.GPJ cnewman@kleinfelder.com 07/19/2001

Northing and Easting: _____ Elevation (ft): _____
 Groundwater (ft): No Free Groundwater Encountered
 Excavation Co. : Plote Backhoe Equipment: CAT-436 4x4
 Excavation Method: BACKHOE Bucket Size (ft): 1.5

L Started: 6/19/2001
 Date Completed: 6/19/2001
 Logged By: Ryan McDonald
 Total Depth (ft): 8.0

	FIELD			LABORATORY						Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft ³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests			0.0 to 8.0 feet
5	BULK BULK								Agronomy Nitrogen Phosphorous Pesticides		CL	Sandy Clay - Predominantly fine sand, red-brown to brown, dry, low plasticity.
10												Test Pit terminated at 8.0 feet Sampling stopped at 8.0 feet
15												
20												
25												
30												
35												



LOG OF TEST PIT TP-2
 Tall Pot Mitigation
 Maricopa County Flood District
 Excess Land
 Chandler, Arizona

TEST PIT

TP-2

Page 1 of 1

Drafted By: jm Project Number: 52-5146-01
 Date: July, 2001

Northing and Easting: _____ Elevation (ft): _____
 Groundwater (ft): No Free Groundwater Encountered
 Excavation Co. : Plote Backhoe Equipment: CAT-436 4x4
 Excavation Method: BACKHOE Bucket Size (ft): 1.5

D. Started: 6/19/2001
 Date Completed: 6/19/2001
 Logged By: Ryan McDonald
 Total Depth (ft): 8.0

	FIELD		LABORATORY						Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft ³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)			0.0 to 8.0 feet
		BULK								CL	Sandy Clay - Predominantly fine sand, trace fine gravel, red-brown to brown, dry, low plasticity.
5		BULK			NP	NP	100	29		SM	Silty Sand - Predominantly fine sand, trace fine gravel, brown, slightly moist, non-plastic.
10											Test Pit terminated at 8.0 feet Sampling stopped at 8.0 feet
15											
20											
25											
30											
35											



KLEINFELDER

LOG OF TEST PIT TP-3

Tall Pot Mitigation
 Maricopa County Flood District
 Soil Piles
 Chandler, Arizona

TEST PIT

TP-3

Drafted By: jm
 Date: July, 2001

Project Number:
52-5146-01

Page 1 of 1

Northing and Easting: _____ Elevation (ft): _____
 Groundwater (ft): No Free Groundwater Encountered
 Excavation Co.: Plote Backhoe Equipment: CAT-436 4x4
 Excavation Method: BACKHOE Bucket Size (ft): 1.5

Date Started: 6/19/2001
 Date Completed: 6/19/2001
 Logged By: Ryan McDonald
 Total Depth (ft): 8.0

	FIELD		LABORATORY							Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft ³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests			0.0 to 8.0 feet
		BULK			24	6	99	51	Agronomy Nitrogen Phosphorous Pesticides		CL-ML	Silty Clay to Clayey Silt - Predominantly fine sand, trace of fine gravel, red-brown to brown, dry, low plasticity.
5		BULK									SM	Silty Sand - Predominantly fine sand, trace fine gravel, brown, slightly moist, non-plastic.
10												Test Pit terminated at 8.0 feet Sampling stopped at 8.0 feet
15												
20												
25												
30												
35												



KLEINFELDER

LOG OF TEST PIT TP-4

Tall Pot Mitigation
 Maricopa County Flood District
 Soil Piles
 Chandler, Arizona

TEST PIT

TP-4

Page 1 of 1

Drafted By: jm
 Date: July, 2001

Project Number:
52-5146-01

Northing and Easting: _____ Elevation (ft): _____
 Groundwater (ft): No Free Groundwater Encountered
 Excavation Co.: Plote Backhoe Equipment: CAT-436 4x4
 Excavation Method: BACKHOE Bucket Size (ft): 1.5

D. Started: 6/19/2001
 Date Completed: 6/19/2001
 Logged By: Ryan McDonald
 Total Depth (ft): 9.0

	FIELD		LABORATORY							Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft ³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests			0.0 to 9.0 feet
		BULK							Pesticides		SM	Silty Sand - Predominantly fine sand, trace fine gravel, red-brown to brown, dry, non-plastic.
5		BULK			NP	NP	99	52	Agronomy Nitrogen Phosphorous Pesticides		ML	Sandy Silt - Predominantly fine sand, trace fine gravel, brown, slightly moist, non-plastic.
10												Test Pit terminated at 9.0 feet Sampling stopped at 9.0 feet
15												
20												
25												
30												
35												

GEO_ADOT_TEST-PIT_E 514601.GPJ cnewman@kleinfelder.com 07/19/2001



LOG OF TEST PIT TP-5
 Tall Pot Mitigation
 Maricopa County Flood District
 Soil Piles
 Chandler, Arizona

TEST PIT

TP-5

Drafted By: Jm Project Number: 52-5146-01
 Date: July, 2001

Page 1 of 1

Northing and Easting: _____ Elevation (ft): _____
 Groundwater (ft): No Free Groundwater Encountered
 Excavation Co. : Plote Backhoe Equipment: CAT-436 4x4
 Excavation Method: BACKHOE Bucket Size (ft): 1.5

Date Started: 6/19/2001
 Date Completed: 6/19/2001
 Logged By: Ryan McDonald
 Total Depth (ft): 9.0

	FIELD		LABORATORY						Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft ³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)			0.0 to 9.0 feet
5	BULK				NP	NP	98	45		SM	Sandy Silt - Predominantly fine sand, trace fine gravel, red-brown to brown, dry, non-plastic.
10	BULK										Test Pit terminated at 9.0 feet Sampling stopped at 9.0 feet
15											
20											
25											
30											
35											

GEO_ADOT_TEST-PIT_E 514601.GPJ cnewman@kleinfelder.com 07/19/2001



LOG OF TEST PIT TP-6
 Tall Pot Mitigation
 Maricopa County Flood District
 Soil Piles
 Chandler, Arizona

TEST PIT
TP-6

Drafted By: jm Project Number: 52-5146-01
 Date: July, 2001

Northing and Easting: _____ Elevation (ft): _____
 Groundwater (ft): No Free Groundwater Encountered
 Excavation Co.: Plote Backhoe Equipment: CAT-436 4x4
 Excavation Method: BACKHOE Bucket Size (ft): 1.5

Date Started: 6/19/2001
 Date Completed: 6/19/2001
 Logged By: Ryan McDonald
 Total Depth (ft): 10.0

	FIELD		LABORATORY						Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)			0.0 to 10.0 feet
	BULK				28	5	91	43		SC-SM	Clayey to Silty Sand - Predominantly fine to medium sand, trace fine gravel, red-brown to brown, dry, low plasticity.
5	BULK										
10											Test Pit terminated at 10.0 feet Sampling stopped at 10.0 feet
15											
20											
25											
30											
35											



LOG OF TEST PIT TP-7
 Tail Pot Mitigation
 Maricopa County Flood District
 Soil Piles
 Chandler, Arizona

TEST PIT

TP-7

Page 1 of 1

Drafted By: jm Project Number: 52-5146-01
 Date: July, 2001

Northing and Easting: _____

Elevation (ft): _____

D. Started: 6/19/2001

Groundwater (ft): _____

No Free Groundwater Encountered

Date Completed: 6/19/2001

Excavation Co. : _____

Plote Backhoe

Equipment: CAT-436 4x4

Logged By: Ryan McDonald

Excavation Method: _____

BACKHOE

Bucket Size (ft): 1.5

Total Depth (ft): 10.0

	FIELD		LABORATORY							Graphical Log	USCS Classification	DESCRIPTION
	Sample Interval	Sample Type	Dry Density (lbs/ft³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests			0.0 to 10.0 feet
		BULK							Pesticides		CL	Sandy Clay - Predominantly fine sand, trace fine gravel, red-brown to brown, dry, low plasticity.
5		BULK			NP	NP	99	39	Agronomy Nitrogen Phosphorous Pesticides		SM	Silty Sand - Predominantly fine to medium sand, trace fine gravel, brown, slightly moist, non-plastic.
10												
15												
20												
25												
30												
35												
												Test Pit terminated at 10.0 feet Sampling stopped at 10.0 feet



LOG OF TEST PIT TP-8

Tall Pot Mitigation
Maricopa County Flood District
Soil Piles
Chandler, Arizona

TEST PIT

TP-8

Page 1 of 1

Drafted By: jm
Date: July, 2001

Project Number: 52-5146-01

APPENDIX B

Laboratory Results



TALL POTS

LOCATION:

REVIEWED BY:

PROJECT NO: 52-5146-01

WORK ORDER NO: 01192

DATE SAMPLED: 06/19/01

MECHANICAL SIEVE ANALYSIS
GROUP SYMBOL, USCS (ASTM D-2487)

SIEVE SIZES

[illegible]

PERCENT PASSING BY WEIGHT

[illegible]



KLEINFELDER

PROJECT: TALL POTS
LOCATION:
MATERIAL: SOIL SAMPLE
SAMPLE SOURCE: TP1 DEPTH: 0' - 3'

JOB NO: 52-5146-01
WORK ORDER NO: 01005
LAB NO: 1
TESTED BY: IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.8	N/A
SOLUBLE SALTS	510.0	ppm
CALCIUM CARBONATES	2.8	%
EXCHANGEABLE SODIUM	2.2	%
EXCHANGEABLE SODIUM	99	ppm
NITRATE NITROGEN	9.3	ppm
PHOSPHATE PHOSPHORUS	4.1	ppm



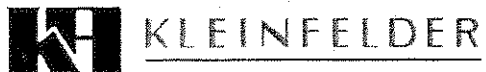
KLEINFELDER

PROJECT: TALL POTS
LOCATION:
MATERIAL: SOIL SAMPLE
SAMPLE SOURCE: TP2 DEPTH: 0.5' - 3'

JOB NO: 52-5146-01
WORK ORDER NO: 01005
LAB NO: 3
TESTED BY: IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.3	N/A
SOLUBLE SALTS	1660	ppm
CALCIUM CARBONATES	4.1	%
EXCHANGEABLE SODIUM	3.3	%
EXCHANGEABLE SODIUM	210	ppm
NITRATE NITROGEN	37.0	ppm
PHOSPHATE PHOSPHORUS	5.9	ppm



PROJECT: TALL POTS

LOCATION:

MATERIAL: SM

SAMPLE SOURCE: TP3 DEPTH: 2' - 8'

JOB NO:

WORK ORDER NO:

LAB NO:

TESTED BY:

52-5146-01

01005

5

IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.6	N/A
SOLUBLE SALTS	320.0	ppm
CALCIUM CARBONATES	1.3	%
EXCHANGEABLE SODIUM	2.0	%
EXCHANGEABLE SODIUM	45	ppm
NITRATE NITROGEN	9.0	ppm
PHOSPHATE PHOSPHORUS	4.6	ppm



PROJECT: TALL POTS
LOCATION:
MATERIAL: CL-ML
SAMPLE SOURCE: TP4 DEPTH: 0' - 4'

JOB NO: 52-5146-01
WORK ORDER NO: 01005
LAB NO: 6
TESTED BY: IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.3	N/A
SOLUBLE SALTS	1150	ppm
CALCIUM CARBONATES	3.5	%
EXCHANGEABLE SODIUM	1.9	%
EXCHANGEABLE SODIUM	130	ppm
NITRATE NITROGEN	34.0	ppm
PHOSPHATE PHOSPHORUS	8.3	ppm



PROJECT: TALL POTS
LOCATION:
MATERIAL: ML
SAMPLE SOURCE: TP5 DEPTH: 4' - 9'

JOB NO: 52-5146-01
WORK ORDER NO: 01005
LAB NO: 9
TESTED BY: IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.3	N/A
SOLUBLE SALTS	830.0	ppm
CALCIUM CARBONATES	2.5	%
EXCHANGEABLE SODIUM	1.8	%
EXCHANGEABLE SODIUM	100	ppm
NITRATE NITROGEN	46.0	ppm
PHOSPHATE PHOSPHORUS	7.2	ppm



PROJECT: TALL POTS
LOCATION:
MATERIAL: SM
SAMPLE SOURCE: TP6 DEPTH: 0' - 4'

JOB NO: 52-5146-01
WORK ORDER NO: 01005
LAB NO: 10
TESTED BY: IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.3	N/A
SOLUBLE SALTS	1400	ppm
CALCIUM CARBONATES	5.8	%
EXCHANGEABLE SODIUM	1.7	%
EXCHANGEABLE SODIUM	110	ppm
NITRATE NITROGEN	510.0	ppm
PHOSPHATE PHOSPHORUS	67	ppm



KLEINFELDER

PROJECT: TALL POTS
LOCATION:
MATERIAL: SC-SM
SAMPLE SOURCE: TP7 DEPTH: 0' - 3'

JOB NO: 52-5146-01
WORK ORDER NO: 01005
LAB NO: 12
TESTED BY: IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.3	N/A
SOLUBLE SALTS	1280.0	ppm
CALCIUM CARBONATES	4.1	%
EXCHANGEABLE SODIUM	1.3	%
EXCHANGEABLE SODIUM	91	ppm
NITRATE NITROGEN	28.0	ppm
PHOSPHATE PHOSPHORUS	5.7	ppm

**KLEINFELDER**

PROJECT: TALL POTS

LOCATION:

MATERIAL: SM

SAMPLE SOURCE: TP8 DEPTH: 2' - 8'

JOB NO:

52-5146-01

WORK ORDER NO:

01005

LAB NO:

15

TESTED BY:

IAS LABS.

ANALYSES RESULTS

ANALYSIS	RESULTS	UNITS
pH	8.3	N/A
SOLUBLE SALTS	1020	ppm
CALCIUM CARBONATES	2.8	%
EXCHANGEABLE SODIUM	2.3	%
EXCHANGEABLE SODIUM	100	ppm
NITRATE NITROGEN	56.0	ppm
PHOSPHATE PHOSPHORUS	6.8	ppm

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-01A

Client Sample TP-1@0-3'
Tag Number: 01A
Collection 6/19/2001 7:40:00 AM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: DCS		
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/13/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/13/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/13/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/13/2001
4,4'-DDE	0.0054	0.00083		mg/Kg	1	7/13/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/13/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/13/2001
4,4'-DDT	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/13/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/13/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/13/2001
Toxaphene	< 0.017	0.017		mg/Kg	1	7/13/2001
Surr: Decachlorobiphenyl	95.2	0-0		%REC	1	7/13/2001
Surr: Tetrachloro-m-xylene	84.8	0-0		%REC	1	7/13/2001

Qualifiers: ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-02A

Client Sample TP-2@0-3'
Tag Number: 02A
Collection 6/19/2001 8:30:00 AM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: DCS
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.045	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	0.0039	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	0.062	0.017	R3	mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	85.9	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	83.7	0-0		%REC	1	7/14/2001

Qualifiers: ND - Not Detected at the Reporting Limit
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J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-03A

Client Sample TP-3@0-8'
Tag Number: 03A
Collection 6/19/2001 9:40:00 AM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: DCS
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.0027	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	< 0.017	0.017		mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	92.1	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	83.2	0-0		%REC	1	7/14/2001

Qualifiers: ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-04A

Client Sample TP-4@0-8'
Tag Number: 04A
Collection 6/19/2001 10:25:00 AM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: DCS
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.019	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	0.0011	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	0.033	0.017		mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	83.6	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	80.4	0-0		%REC	1	7/14/2001

Qualifiers: ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-05A

Client Sample TP-5@0-8'
Tag Number: 05A
Collection 6/19/2001 10:55:00 AM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: DCS		
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.053	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	0.0032	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	0.098	0.017	R3	mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	83.3	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	79.7	0-0		%REC	1	7/14/2001

Qualifiers: ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-06A

Client Sample TP-6@0-8'
Tag Number: 06A
Collection 6/19/2001 11:35:00 AM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: DCS
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.065	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	0.00089	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	0.0035	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	0.058	0.017		mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	87.7	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	85.8	0-0		%REC	1	7/14/2001

Qualifiers: ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-07A

Client Sample TP-7@0-8'
Tag Number: 07A
Collection 6/19/2001 12:00:00 PM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: DCS		
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.051	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	0.0035	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	0.053	0.017		mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	91.8	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	86.0	0-0		%REC	1	7/14/2001

Qualifiers: ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

Date: 15-Jul-01

CLIENT: Transwest Geochem, Inc.
Lab Order: 0107372
Project: Tall Pots Mitigation52-5146/0106164
Lab ID: 0107372-08A

Client Sample TP-8@0-10'
Tag Number: 08A
Collection 6/19/2001 12:25:00 PM
Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: DCS		
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.037	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	0.0036	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	0.055	0.017		mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	92.8	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	88.8	0-0		%REC	1	7/14/2001

Qualifiers: ND - Not Detected at the Reporting Limit
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J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level